

Remarks

Claims 1-21 are pending. Claims 1-21 are rejected.

Claims 1-6, 8-12, and 14-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bovarnick et al. (U.S. 6,704,015) in view of Sugino et al. (U.S. 5,287,284). Claims 7 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bovarnick in view of Sugino, in further view of Van Wyk et al. (U.S. 5,581,466).

With regard to claims 1 and 14, Sugino fails to teach, disclose, or suggest characterizing the at least one contributing factor in terms of at least one control factor. Examiner asserts that “the contributing factor is chip [pad] position and the control factor is the analysis execution controller . . .” Office Action, July 21, 2006, p. 3. Sugino does not characterize its chip pad position in terms of its analysis execution controller. Rather, as admitted by Examiner “the analysis execution controller . . . controls the . . . chip pad position.” *Id.* Sugino’s “controller” is not a control factor. Control factors, for example, are “variables that can be controlled . . .” (p. 25, ll. 12-13).

With regard to claims 1 and 14, Sugino fails to teach, disclose, or suggest adjusting nominal design values for the at least one control factor such that variability in the at least one contributing factor is minimized and the target value for the at least one aspect is attained. Examiner asserts that normalizing data “teaches adjusting nominal design values for the at least one control factor such that variability in the at least one contributing factor is minimized and the target value for the at least one aspect is attained (column 7, lines 63-67 . . .” Office Action, July 21, 2006, p. 3.

Sugino states that

in the trade-off evaluation under 28 normalization is executed from the analysis result obtained by calculating the polynomials so that the analysis result falls within the range of a specific value. For example, conversion is made so that the best case corresponds to “1” and the worst case, to “0” and normalization

is made so that the analysis result falls within the range of [0, 1] (processing 122).

Col. 7, 1. 63 - Col. 8, 1. 2.

Normalizing data typically involves dividing the data set by the largest data point. For example, if a data set consists of data points 2, 4, and 8, dividing each data point by 8 would normalize the data such that the normalized data set would fall within the range [0, 1]. Normalizing data has nothing to do with adjusting nominal design values such that variability in a contributing factor is minimized.

Sugino teaches away from adjusting nominal design values such that variability in a contributing factor is minimized. Sugino's "optimization" is carried out "in order to obtain the design parameter . . . which maximizes the evaluation formula $F(x)$. . ." Col. 8, ll. 34-36. The terms "minimized" and "variability" appear to be absent from Sugino.

To the extent Examiner asserts that claims 9 and 20 recite limitations similar to claims 1 and 14, the above arguments apply to claims 9 and 20.

With regard to claims 9 and 20, Sugino fails to teach, disclose, or suggest input defining a transfer function characterizing a contributing factor to a product aspect that is critical to customer satisfaction in terms of at least one control factor for the contributing factor. Examiner asserts that Sugino teaches a transfer function "where[, in Figure 8,] the defect ratio is plotted as a function of the degree of unbalance." Office Action, July 21, 2006, p. 4. A plot of the defect ratio and degree of unbalance, however, does not suggest that Sugino teaches a transfer function. Such a plot could be generated from collected data:

Defect data of existing products are collected so as to prepare defect data base and the relationship between defect ratio data and the analysis result is determined on the basis of this defect data base (processing 300) as shown in FIG. 8.

Col. 8, ll. 5-9.

Applicants' transfer function is an equation. Figure 15. Sugino appears to lack such an equation, for example, describing the relationship between defect ratio and degree of unbalance.

Examiner fails to establish a *prima facie* case of obviousness. For the above reasons, Examiner's cited art fails to recite each and every limitation of Applicants' claimed invention and Examiner fails to establish a motivation to combine the cited references.

Claims 2-8, 10-13, 15-19, and 21 depend from claims 1, 9, 14, and 20 respectively and are therefore patentable at least for the reasons claims 1, 9, 14, and 20 are patentable.

Applicants' Attorney believes the claims are in a condition for allowance. Applicants' Attorney respectfully requests a notice to that effect. Applicants' Attorney also invites a telephone conference if Examiner believes it will advance the prosecution of this case.

Please charge any fees or credit any overpayments as a result of the filing of this paper to Ford Global Technologies LLC, No. 06-1510.

Respectfully submitted,

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